(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
15 March 2001 (15.03.2001)

PCT

(10) International Publication Number
WO 01/18723 A2

(51) International Patent Classification[7]: G06F 17/60

(21) International Application Number: PCT/US00/24681

(22) International Filing Date:
8 September 2000 (08.09.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

09/393,060	9 September 1999 (09.09.1999)	US
09/393,057	9 September 1999 (09.09.1999)	US
09/393,236	9 September 1999 (09.09.1999)	US
09/393,059	9 September 1999 (09.09.1999)	US
09/393,221	9 September 1999 (09.09.1999)	US
09/393,210	9 September 1999 (09.09.1999)	US
09/393,209	9 September 1999 (09.09.1999)	US

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(81) Designated States *(national)*: AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *Without international search report and to be republished upon receipt of that report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 01/18723 A2

(54) Title: ATTENTION MANAGEMENT SYSTEM AND METHOD

(57) Abstract: A system, method and apparatus for monitoring the attention allocated to one or more items receiving attention. A number of attention types are defined, preferably as associated pairs in turn defining opposed directions in multiple dimensions. Response data is then collected from the individual or group about the attention which they pay to the items. From this response data, type values are calculated for each of the items receiving attention, with respect to each of the attention types, and a graphical representation of the attention allocated by the individual or group to each of the items is then created. Additionally, but optionally, the graphical representation may also include other information of importance about the attention items.

ATTENTION MANAGEMENT SYSTEM AND METHOD

TECHNICAL FIELD

The present invention relates generally to the analysis of attention, and more particularly to monitoring attention allocation.

BACKGROUND ART

The transition to an information society has made attention an increasingly important resource in many segments of our society. For us as individuals dealing with other individuals, capturing, holding, and giving attention are important in our personal, professional, and social lives. In our dealings with groups of others, using attention is important in working with government and businesses entities. Entire organizations collectively must "employ" attention to work with internal and external environments composed of individuals and groups, which may include employees and business leaders, customers and suppliers, competitors, and governmental authorities and agencies. Attention is a critical resource throughout out individual and collective lives, and clearly we should pay attention to attention.

Yet while attention is of such importance it is little understood. We all think that we understand it, and sometimes that we manage it well, but what do we actually know about it? What are its attributes? Is working with it an art or a science?

A few basic points about attention are widely appreciated, at least at an intuitive level. It is a finite resource, one can only give or receive so much attention. Bidding for it is a zero-sum game, and there is no "win-win" end to this game. Attention management is a two way street; seekers try to capture it, and givers try to hoard it. The struggle for attention is thus intensely competitive, and this is rapidly is becoming increasingly so in our complex modern society. The inventors' review of the field shows that attempts at quantifying it, i.e., determining its quantity, and qualitizing it, i.e., determining its quality, have been vague and subjective, to date.

One hypotheses found in the literature is that attention is the space between awareness and action where there is enough meaning to create an action decision. FIG. 1 (background art) is a flow chart depicting, chronologically from left to right, how attention **10** in a particular meaning or

context 12 comes between awareness 14 and an action decision 16; which is ultimately followed by an action or inaction 18.

Another approach is that of a process diagram. FIG. 2 (background art) is a stylized block diagram depicting attention in this manner. Various inputs 20 receive attention 10, and result in various outputs 22. The specific inputs 20 shown here include: goals 24, the unexpected 26, fear 28, and opportunities 30; while the specific outputs 22 shown include: sales 32, long-term relationships 34, better decisions 36, and other outcomes 38. These are, of course, merely a few of the probably infinite number of possible examples.

This discussion treats attention primarily in a business context. The transition to an information society has made attention the single most important element in doing business. In fact, we can term it a "resource." Though this idea is ubiquitous in business literature, it is always implicit; no one has explicitly analyzed the phenomenon of attention. But doing this is now strongly motivated, in part, because our new information technologies have flooded people with data, information, and knowledge for which there is insufficient attention. Examples include the need to draw attention to web sites, intranet pages, knowledge repository items, etc.

In our information-intensive and globally connected world, attention can be a business's most important asset. Companies will thrive only if they can master all three processes of attention: capturing, holding and giving it. Internally, complex organizational structures force the various structural dimensions (business leaders, functions, process, products, geography, etc.) to all compete for the attention of managers and employees. Externally, these same businesses must manage the attention that they receive, hold in trust, and give to customers, suppliers, competitors, and the myriad of other individuals and organizations with which they must deal. Many corporate disasters are the result of the failure to "attend" to important factors in the internal or external environments.

Continuing in a business context, successful business leaders must manage attention at a variety of levels. They must get or capture customer attention (attention from outside the firm), by advertising and engaging in business development; they must also keep or hold customer attention, by satisfying and continuing to be of interest; and they must give the customer attention, by efforts such as one-to-one marketing and market research. Successful leaders must also capture, hold, and give organizational attention (attention inside the firm). They must also

lead by mobilizing attention on the most important issues and goals. This requires, for example, giving attention to employee needs and retention. Still further, such leaders must manage personal attention. They must focus on the right business issues, and pay attention to the issues most important to their own careers, all while getting others to pay attention to their agendas.

What is needed is a new approach to analyzing and managing attention. Herein the inventors disclose the following. First, we need to understand attention better. For that we need tools, systems, and methods for studying it and for representing the results of those studies. Second, once we better understand and can represent attention, we can better understand what subjects its presence, absence, and change tell us. The developed tools, systems, and methods for studying and representing attention then become extendable and useful for understanding (analyzing), representing, modeling, and simulating these subjects as well. And third, once we understand these subjects, we can change attention to accomplish change in them, i.e., to manage these subjects of attention as well.

DISCLOSURE OF INVENTION

Accordingly, it is an object of the present invention to provide a tool for monitoring the attention allocated to one or more items. Another object of the invention is to provide such a tool which may be implemented in the forms of logic, methods, and a computer program. Another object of the invention is to provide such a tool which is additionally able to concurrently provide information about other aspects of importance with respect to the items. And, another object of the invention is to provide such a tool which presents a graphical representation of attention allocation.

Briefly, one preferred embodiment of the present invention is a method for monitoring the allocation of attention. A number of attention types are defined, preferably as associated pairs which in turn serve to define opposed directions in multiple dimensions. Response data is then collected from an individual or group about the attention which they pay to one or more items. From this response data, values for each of the attention types are calculated for each of the items receiving attention. A graphical representation of the attention allocated by the individual or group for each of the items is then created. Additionally, but optionally, the graphical representation may include other information of importance about the attention items.

An advantage of the present invention is that it provides a powerful tool for monitoring attention allocation, yet one which is easily understood and used. It may use simple monitoring or questioning and it may provide results which are easily understood and employed. Another advantage of the invention is that the tool which it provides is highly scalable, being suitable for depicting one or many aspects of attention concurrently, as well as other information about the items of interest, if desired. Another advantage of the invention is that the tool which it provides is one desired by and of use to a broad spectrum of our society. It may be used by individuals and groups for personal, business, social and other purposes. And another advantage of the invention is easily and economically implemented, being well within the capabilities of skilled professionals in the relevant fields and using well understood techniques and widely available components. Computerized implementations can be programmed using what are today common programming languages and applications packages.

These and other objects and advantages of the present invention will become clear to those skilled in the art in view of the description of the best presently known mode of carrying out the

invention and the industrial applicability of the preferred embodiment as described herein and as illustrated in the several figures of the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The purposes and advantages of the present invention will be apparent from the following detailed description in conjunction with the appended drawings in which:

FIG. 1 (background art) is a flow chart depicting, chronologically from left to right, how attention in a particular meaning or context comes between awareness and action;

FIG. 2 (background art) is a stylized block diagram depicting attention as an element between inputs and outputs in a process;

FIG. 3 is a product of the inventive attention system, termed an "attentionscape," graphically presenting a map of an attention;

FIG. 4 is a chart depicting how attention can be represented as a plurality of scales, each having two opposite directions;

FIG. 5a is a table of questions used in an interrogative version of the attention system,

FIG. 5b is a table of an agreement scale used for some of the questions in the table in FIG. 5a, and FIG. 5c is a table of suitable color-for-value equivalents suitable for depicting z-axis position in an attentionscape derived from the responses to the third and fifth questions in FIG. 5a;

FIG. 6 is an attentionscape of an employer mapping the attention of a single employee;

FIG. 7 is an attentionscape of employees' collective attention, drawn up by a leadership team;

FIG. 8 is an attentionscape for a supplier map, depicting how an individual customer perceives different companies as suppliers;

FIG. 9 is an attentionscape of attention by MBA students to prospective consulting employers; and

FIG. 10 is a graphing of the percentage of time spent on various attention and time items by a firm classifying itself as an innovation company.

BEST MODE FOR CARRYING OUT THE INVENTION

A preferred embodiment of the present invention is a system for analyzing and managing both individual and group attention. As illustrated in the various drawings herein, and particularly in the view of FIG. 3, a form of this preferred embodiment of the inventive device is depicted by the general reference character 100.

FIG. 3 graphically depicts an example of a product of the inventive attention system **100** which the inventors term an "attentionscape." The attentionscape **110** portrays the location of attention items **112** in a multi-dimensional manner. Both an x-dimension **114** and a y-dimension **116** have a respective negative-ward end **118** and an opposite positive-ward end **120**, much in the manner of traditional x-y axis based Cartesian coordinate graphs. A z-dimension is further represented, using the colors violet, blue, cyan, green, yellow, orange, and red to conceptually represent negative-ward and positive-ward along that dimension. An accompanying legend **122** explains the significance of the respective colors and will be treated herein as being synonymous with this z-dimension **122**. Still further, a shape characteristic of the attention items **112** is also used as an effective fourth dimension **124**. Here the shape characteristic for the fourth dimension **124** is icon size. Since negative size is not possible, the fourth dimension **124** in this example extends only positive-ward, and the attentionscape **110** depicted here is more correctly a 3-1/2 dimensional representation.

FIG. 4 is a graphic stylistically depicting a fundamental aspect of the inventive attention system **100**, how attention **10** can be represented as being located along a plurality of scales each having two opposite directions. A first scale **130** depicts aversive attention **132** and attractive attention **134**, extending in opposite directions; a second scale **136** depicts captive attention **138** and voluntary attention **140**; and a third scale **142** depicts back-of-mind attention **144** and front-of-mind attention **146**. These scales **130**, **136**, and **142** are easily understood by studying some examples.

Aversive attention **132** includes that attention which we give to deformed people, death, and the agony of defeat. This is the first of two types of attention having to do with carrot-or-stick motivation, i.e., where a reward or punishment results. Aversive attention **132** is that which we pay to avoid or deal with negative consequences. One might pay such attention to what brand of tires they buy because they want to avoid the aversive possibility of a driving accident.

Alternately, one might pay such attention to a crippled person to avoid such a malady oneself. This is attention grudgingly given, and understanding it requires evaluation of "trepidation or danger" in attentive activities.

Attractive attention **134** includes that which we give to beautiful people, birth, and the thrill of victory. This is the second of the two types of attention having to do with punishment-or-reward motivation. Attractive attention **134** is that which we pay to what we want to have or be like. A common example is the use of sex in advertising. Attractive or handsome models appear in commercials for automobiles to make us want to have the automobile and thus be with or be like the models. Understanding this type of attention requires evaluation of "pleasure" in attentive activities.

Captive attention **138** includes the attention which we pay to cinema advertising, work assignments, and bad weather. This is the first of two types of attention having to do with choice. Captive attention **138** is in some way thrust upon us; it is coercion, but it may be much more subtle than explicit commands or physical control. Understanding this type of attention requires evaluation of "have to" in attentive activities.

Voluntary attention **140** includes attention we pay to TV and print advertising, hobbies, and a rainbow. This is the second of two types of attention having to do with choice, and is conceptually opposite captive attention **138**. This is attention to things which we find innately interesting, and attention to things that we would probably focus on even if doing so were explicitly forbidden. Understanding this type of attention requires evaluation of "want to" in attentive activities.

Back-of-mind attention **144** includes that which we give to commuting to work, buying milk, and a spouse. It is the first of two types of attention having to do conscious and sub-conscious thought. Walking or looking at a clock are often back-of-mind processes while one is talking on a cell-phone, for example. Understanding this type of attention requires evaluation of "being" in attentive activities.

Front-of-mind attention **146** includes that paid to examples **148** such as business decisions, buying a car, and a lover. This is the second of the two types of attention having to do with conscious and sub-conscious thought. A cell-phone conversation may involve this type of

attention if it is important or if it is conveying previously unknown information. When we first are learning something new we usually need to pay it front-of-mind attention **146**, and as it becomes familiar and routine we are then able to instead pay it mostly back-of-mind attention **144**. Understanding front-of-mind attention **146** requires evaluation of the "doing" of attentive activities.

The above examples **148** are merely illustrative for present purposes, with potentially an infinite variety being possible, and even other scales than those used above are possible. One readily apparent example would be a "negative-positive" attention scale, as distinguished from "aversive-attractive." However, there is some formal debate in the psychological literature concerning negative and positive attention; some models view negative emotion as the polar opposite of positive, while others view the two concepts as independent evaluations, i.e., permitting something to be both negative and positive at the same time. The inventors have abandoned developing scales and dimensions of "negative-positive" attention for a variety of reasons. Two particular ones being that the responses to negative-positive attention are less informative than the other attention dimensions already noted and negative-positive attention is more closely related to emotion or affect than to a notion of cognitive attention and mental load.

Before moving on, there are some additional points about attention which should be particularly appreciated. One which is somewhat counter intuitive is that the paired attention opposites are not mutually exclusive. One may pay both aversive attention **132** and attractive attention **134**, or both captive attention **138** and voluntary attention **140**, or both back-of-mind attention **144** and front-of-mind attention **146** to the very same item. Aversive attention **132** to an automobile commercial touting safety features can be concurrent with attractive attention **134** if an attractive model is presenting those features. A mountain climber may be paying back-of-mind attention **144** to using his or her gear properly, while concurrently paying front-of-mind attention **146** to the path ahead or the gorgeous view.

Another point is that because the effect of combining the attention extremes is additive, the ultimate attention getter draws all six extremes at once. Such all-consuming attention seems to be a feature of what psychologist Mihaly Csikszentmihalyi calls "flow" experiences. These characterize the most intensely rewarding and enjoyable moments of our lives, and we thus have a tendency to seek them out or create them. Extreme sports like sky-diving and rock-climbing are good examples of activities that concurrently elicit captive attention **138** and voluntary attention

140, and aversive attention 132 and attractive attention 134, and front-of-mind attention 146 and back-of-mind attention 144. We human beings love to have our attention totally saturated, to an extent that some of us even risk our lives for the experience.

Skilled attention management requires knowing how to create high levels of all attention types possible, sometimes simultaneously and sometimes separately. As the discussion above has implied, the inventive attention system 100 tells us how much of each kind of attention one or more items of attention is receiving, or might be adjusted to receive. It permits us to attach magnitudes to discrete attention parameters which we can study and work with.

The inventive attention system 100 therefore particularly lends itself to computerized embodiments. For example, to generate an attentionscape 110 a computer program can ask an individual user to identify major attention items 112, say across the last day or the last work shift. Alternately, members of a team can be asked, individually or collectively, to identify attention items 112, and only the major ones then focused on. In a focus group the members might enter the names of several different brands of a product. Still alternately, employees or managers may be asked to specify items which should be allocated significant attention in a firm's competitive environment. FIG. 3 includes these attention items 112 which might have been entered in this last scenario: project staffing, client project status, innovative solutions, team communications, external competition, building client trust, e-mail, and family. As can be appreciated, the possible examples are limitless.

Once the attention items 112 are selected and entered the next step is to determine how the respondents do or would feel about them. Although monitoring respondent behavior is quite appropriate for doing this, also, the inventors' prefer questioning. Asking questions, recording the responses received as numerical values, and performing calculations on those numerical values to determine magnitudes for the various parameters of the attention motivating the responses are all tasks which computer programs can perform well.

FIG. 5a is a table of questions 160, responses 162, and factors 164 used in an interrogative version of the attention system 100. For a particular attention item 112, each of the questions 160 are asked and the respondent provides responses 162, in the manner indicated. These are associated with the respective factors 164. Eight questions 160 are shown here, but that is not a required number. In particular, the first and last questions 160 here are somewhat redundant.

They are typically used for creating a forth dimension reflecting magnitude of something related to attention, or for facilitating other attention analysis. An attentionscape **110** typically might use the results of only one of the first or eighth questions **160** as a graphically represented factor **164**, perhaps using the other merely as a cross-check or to urge the respondent into providing candid or more reasoned responses **162**. Alternately, and as will be shown presently in another example for other aspects of the attention system **100** besides the attentionscape **110**, the responses to all of the questions **160** may be important and may be used directly. Or the first or eighth questions **160** as may be entirely omitted. A respondent might not even be asked any questions beyond those for attention type, with objective information like percentage market share taken from an industry publication for use as magnitude in the forth dimension, for example.

The manner of the responses **162** to the first and last questions **160** here are stated directly in the table of FIG. 5a. The first question **160** asks how much attention was paid to a specific attention item **112**, eliciting a percentage amount where the total for all such percentage amounts for all of the attention items **112** adds up to 100%. The eighth question **160** asks how much time was spent on a specific attention item **112**. This is solicited as hours and minutes. Attention and time allocation are not necessarily well correlated, so questions like these first and eighth ones may help the attention system **100** produce particularly valuable insights. Of course, other questions than these two might be used, say to obtain subjective evaluations of percentage market share for the first question and media advertisements seen per week for the eighth, etc.

The second through seventh questions **160** in FIG. 5a are for information about the six attention types (adverse-attractive, captive-voluntary, and front/back-of mind) which may with varying magnitude apply to an attention item **112**. FIG. 5b is a table of an agreement scale for the manner of response **162** which are preferred for these. This table includes a numerical scale in which -3 indicates strong disagreement, 0 indicates neutral agreement, and +3 indicates strong agreement. Any Likert-type scale range would work here, and the -3 and +3 end values used are arbitrary, but they make the calculations more convenient in the inventor's present preferred embodiments of the invention.

As can be seen in FIG. 5a, the second of the questions **160** is being used in determining whether the respondent regards the particular topic attention item **112** as meriting front-of-mind attention **146**. This is shown by use of the word "concentrated." The third of the questions **160** is being used in determining attractive attention **134**, as indicated by the words "excited" and, to a lesser

extent, "happy." The forth of the questions **160** elicits information about captive attention **138** (using "not ... avoid," "necessary," and "imperative"). The fifth of the questions **160** is for aversive attention **132** ("negative" and "pay attention"). The sixth of the questions **160** is for back-of-mind attention **144** ("subconscious" and "didn't ... concentrate"). And the seventh of the questions **160** is for voluntary attention **140** (one "wants" to pay attention to something).

To produce an attentionscape **110** the eight questions **160** of FIG. 5a are evaluated as follows. For the "amount of attention" factor **164** the percentage reported in the first question **160** is divided by ten and passed to a computer graphics program. For the "time allocation" attention factor **164** the response to the eighth question **160** is converted to a percentage of the total time for all attention items **112**, and this is passed to the computer graphics program. For an x-axis using voluntary-captive attention the response to the seventh question **160** (for the "voluntary attention" factor **164**) is subtracted from the response to the fourth question **160** (for the "captive attention" factor **164**). This provides a total usable as an x-coordinate by the computer graphics program. For a y-axis using front-back of mind attention the response to the second question **160** (for the "front-of-mind" attention factor **164**) is subtracted from the response to the sixth question **160** (for the "back-of-mind" attention factor **164**). This provides a total usable as a y-coordinate by the computer graphics program. For a z-axis using attractive-aversive attention the response to the third question **160** (for the "attractive attention" factor **164**) is subtracted from the response to the fifth question **160** (for the "aversive attention" factor **164**). This provides a total usable as a z-coordinate by the computer graphics program.

FIG. 5c is a table depicting one method of how the above total for the z-coordinate may be graphically represented. This is the method used in the examples herein. Warm colors (red, orange, and yellow) are associated with positive totals and attractive attention **134**. Cool colors (light blue or cyan, dark blue, and purple or violet) are associated with negative totals and aversive attention **132**. A total falling in the middle is associated with the color green.

Before moving on, it should be noted that tables of questions **160**, responses **162**, and factors **164**, such as those in FIG. 5a, used in interrogative versions of the attention system **100** need not be limited to analysis of past attention. Individuals and groups can be pooled for prospective responses **162** and these aggregated to model how they might pay attention to one or more items of interest. Such models can be quite powerful, permitting testers to manipulate or alter one or more aspects of the aversive attention **132**, attractive attention **134**, captive attention **138**,

voluntary attention **140**, back-of-mind attention **144**, and front-of-mind attention **146** to one or more attention item **112** at a time.

Returning now to both FIG. 3 and FIG. 4, for attention **10** the characteristics of particular attention items **112** in the attentionscape **110** can be represented by mapping the scales **130**, **136**, and **142** to the dimensions **114**, **116**, and **122**. The respective mappings are a matter of choice, but the inventors like to put captive-voluntary attention on the x-axis, back-front of mind attention on the y-axis, and aversive-attractive attention on the z-axis. A forth half-axis of icon size in the attentionscape **110** is preferred for representing a magnitude variable. Typical examples of such magnitude variables include characteristics like the amount of time spent on each attention item **112** or the quantities of items like sales, employees, percentages of market share, etc.

As can be seen in FIG. 3, the location of many attention items **112** may be shown in the same attentionscape **110**. Here the x-dimension **114** represents the second scale **136** (FIG. 4); the left, negative-ward end **118** on the x-dimension **114** represents captive attention **138**; and the right, positive-ward end **120** represents voluntary attention **140**. The y-dimension **116** represents the third scale **142**; the bottom, negative-ward end **118** on the y-dimension **116** represents back-of-mind attention **144**; and the top, positive-ward end **120** represents front-of-mind attention **146**. The z-dimension **122** represents the first scale **130**. The low wavelength, cooler violet or purple color is the extreme negative-ward direction on this dimension, and represents aversive attention **132**. The high wavelength, hotter red color is the extreme positive-ward and represents attractive attention **134**. An optional fourth dimension **124** is included, and is the shape characteristic of icon size.

FIG. 6 presents another attentionscape **110**, one which will be described now from the perspective of what it shows rather than how it is created. Here an employer has mapped the actual attention of a single employee by using generally the same conventions described for FIG. 3. The dimensions **114**, **116**, and **122** are the same, and the fourth dimension **124** of icon size depicts the employee's priorities. Thus, the small size of the "business planning" attention item **112** indicates that this individual attaches little importance to it, but its location indicates captive attention **138**, nonetheless. In contrast, the large icon used for the "spouse" attention item **112** tells us that this individual attaches great importance to his or her spouse. (If this were one spouse's priority map for the other, rather than the employer's effort here, the size of this

attention item **112** might tell us the amount of importance which the first spouse feels they are due from the other spouse.)

The inventive attention system **100** and tools embodying it like the attentionscape **110** can be very flexible and powerful. As remarks in balloons **170** in FIG. 6 imply, there is little if any correlation between this employee's priorities and his or her work activity. Further, the absence of any back-of mind attention in this attentionscape **110** may be a marked departure from the employer's expectations. The employer, for example, might have until now believed that this particular employee was always mindful (back-of-mind) of the need for business planning. The employer can also see that the employee is devoting the most attention of all to the "publicity" attention item **112**, since it is the largest, and that it is also receiving the most effective attention, since it is centered. But the employer can also see that non-business attention items **112**, such as the spouse, kids, entertainment, and shopping items are monopolizing much of this employee's valuable attention. Granting this employee some personal time off or discussing the need to separate personal problems from work might be appropriate here.

A key to getting utility out of the attentionscape **110** is to remember that its readout is like a bull's-eye target, a point stylistically emphasized in FIG. 3. The most effective attention goes to attention items **112** that are in the center, and thus one thing to look for is imbalance depicted as non-centering. Another suggestion for interpretation is to look for clustering or bunching together of icons for attention items **112**, which may be desirable or not depending on particular goals. Yet a variation of this is to look for quadrant or hemispherical concentration or sparcity. Is everything "south of the horizon" empty, as is the case in FIG. 6? Or is there a generally wide sprinkling of the attention items **112**, as is the case in FIG. 3?

In an attentionscape **110** for an individual, such as that in FIG. 6, much can be inferred about the individual. For example, the respondent has not been able to routinize many aspects of his or her attention. Close, conscious attention is devoted to almost everything. People who keep everything in "front-of-mind" attention are easily overwhelmed, overworked, and overwrought. The pathological extreme of this is a form of schizophrenia; an inability to screen out any information as unimportant, making the noise of the air conditioner or a bird call outside seem as significant as a lecture from the boss. Conversely, in an attentionscape **110** for a group, imbalances cannot usually be reconciled as psychological in nature, and the possibility of systemic problems needs to be considered.

With the tools and the knowledge which the inventive attention system **100** provides, imbalance is correctable. To balance captive attention **138** we can add voluntary aspects. This can be as simple as an individual adopting a mantra "I want to, I really want to," or it can be a business providing sensitivity training on the importance of the item. To balance voluntary attention **140** one can enlist the support of others who will require sticking to the item. Alcoholics recovery and weight loss groups are common examples. To balance back-of-mind attention **144** one can break up routine operations, changing the order of their steps and pausing to analyze what is being done. To balance front-of-mind attention **146** one can work to make an item routine, systematizing the various steps making it up so that concentration can and is focused elsewhere. To balance attractive attention **134** one can add negative consequences, like setting deadlines with penalties. And to balance aversive attention **132** one can add rewards.

The attention system **100** can help identify what attention items **112** are present, and what the nature is of the attention paid to them is, but we still need human effort to decide what attention items **112** should be present. For example, FIG. 3 includes a set of attention items **112** which a manager or management team might have picked as being important, while FIG. 6 includes a set of attention items **112** which an individual personally regarded as being important. Obviously, the employee of FIG. 6 would not fit well into the business environment of FIG. 3.

To use the attentionscape **110** effectively for changing attention, one must decide which attention items **112** are most important. Two effective ways of doing this are to articulate the attention items **112** which we are trying to sustain, and to prioritize each attention item **112** according to a value index. For example, lets say that a leadership team has decided that it considered clients, innovation, team work, external competitive environment, inter-personal issues, business logistics, and family to be important attention items **112**, and that the importance should be from greatest to lowest in that order. FIG. 7 is an attentionscape **110** of employees' attention, drawn up by this leadership team. A group attentionscape **110**, such as this, is created by aggregating the responses **162** (FIG. 5a) for all of the employees being studied. As for previous example attentionscapes the x-y-z dimensions **114**, **116**, and **122** represent aversion-attraction, captive-voluntary, and back-of-mind verses front-of-mind attention. Icon size is used as a fourth dimension **124** here to represent the leadership team's prioritization of the attention items **112**.

As can be seen in FIG. 7, the "clients" attention item **112** is not centered, and it is therefore not receiving maximum effective attention. This can be a very valuable insight, since the company's main source of money is probably its clients. However, the company is generally doing well in this area. The icon size, i.e., the fourth dimension **124**, for the "clients" attention item **112** is the largest, meaning that the clients are getting lots of attention. The "clients" attention item **112** is also a neutral green, meaning that attention to clients is well balanced in the z-dimension **122** for aversion and attraction. The fact that the "client" icon is also very front-of-mind is a good thing, too, since client relationships are ever-changing and require a lot of conscious attentiveness. The only real problem with the "clients" attention item **112** is the fact that it is so far toward the captive side of the attentionscape **110**. The company's personnel are paying attention to the clients because they feel they have no choice. The take-away lesson from this attentionscape **110** is that back-of-mind attention **144** and voluntary attention **140** need to be added to the attention paid to clients here. One way to do this might be to check individual attentionscapes **110**, to see if some employee's interactions with the clients showed up as highly voluntary. Then, those people could be given the bulk of client work, while others who wanted to choose other activities could reduce their client involvement. Another approach might be to create more financial incentives for client interaction, and to hold meetings where consultants and employees who enjoyed client work could pass on motivating ideas and techniques to their less enthusiastic coworkers.

The "innovation" attention item **112** was supposedly the second-most-important item to the leadership team, but it came in a close third in the analysis provided by this attentionscape **110**. Clearly, the employees as a whole were more social and client-oriented than creative and idea-oriented. But the "innovation" attention item **112** did show up as a rosy shade of orange, meaning that the reason personnel were paying attention to it was that they were innately interested in it, not afraid of the results should they fail to keep up with cutting-edge ideas. Since creativity tends to be diminished by aversive attention and increased by attraction attention (prisons are not known as artist's retreats and vacation spots like the French Riviera are), the leadership team might decide that this is okay. Innovation was also very "front-of-mind," another good thing when it comes to constantly changing ideas and projects. However, after looking at this attentionscape **110** the leadership team might decide that trading off on some of the attention parameters going into innovation verses those going into client work might bring both of these attention items **112** closer to "zero longitude."

The "teamwork" attention item **112** was an issue discussed frequently at meetings in the company. Teamwork was also a high priority item for the leadership team, and appropriately it is one that got high front-of-mind attention by the employees. But the yellow color of the icon for the "teamwork" attention item **112** shows that the employees pay attention mainly to the positive effects of functional teams. However, the front-of-mind position for the "teamwork" attention item **112** may be something of a disappointment to the leadership team, since smooth work among employees might preferably be more routine and back-of-mind. Alternately, if the employees were newly grouped together, this front-of-mind position could be quite positive, indicating cooperative inter-employee spirit. This could then very well be an attention item **112** meriting further review in a later attentionscape **110**, to see if employee teamwork does become routine.

The "business logistics" attention item **112** is probably a surprise for the leadership team commissioning this attentionscape **110**. Its icon size reveals that it is taking up a lot of attention, even more than inter-personal issues, and about as much as the employees are allotting to leadership and the external competitive environment. Fortunately, there is usually an obvious, easy fix for this. The company can hire more office assistants, to take the burden of the logistical work and to free up the employees for more value-added tasks. If, for example, some of the leadership team members had previously argued unsuccessfully for this, they now have strong support for their position.

Still further analysis of the attention items **112** in the attentionscape **110** of FIG. 7 is possible, of course, but would not particularly serve our present purpose. The following discussion will present some more attentionscape **110** examples, to emphasize the broad scope of the inventive attention system **100**, and then discussion turns to other tools of the attention system **100** and to some summarizing remarks.

FIG. 8 presents an attentionscape **110** which is a supplier map depicting how an individual customer perceives five different suppliers (companies A, B, C, D, and Z) as attention items **112**. Companies A-D are competitors of company Z, which is conducting the study here. As was the case previously, the dimensions **114**, **116**, and **122** represent aversion-attraction, captive-voluntary, and back-of-mind verses front-of-mind attention. The fourth dimension **124** of icon size is again used, but here to represent company size. As can be readily appreciated, company Z is not "centered" in the customer's attention. An arrow **172** in this attentionscape **110** depicts the

"movement" that company Z needs to make to obtain most efficient and powerful attention from the customer.

The attention system **100** itself cannot always provide explanations for the locations of particular attention item **112** in an attentionscape **110**, but it does show where further investigation is needed. Some remarks in balloons **170** provide further explanation regarding the respective attention item **112** placements in this attentionscape **110**. Here company Z can see that there is some common factor in the customer's mind regarding companies A, B and D, and it can investigate and learn that the customer has a hobby of tracking these competitors, for example. Similarly, company Z can now also investigate and even pursue some what-if analysis of the customer's idiosyncratic attention to company C.

FIG. 9 is an attentionscape **110** for Master in Business Administration (MBA) students' attention to prospective consulting employers. The previous conventions for the x-y-z dimensions are used and icon size here represents the prospective employer's size. Note, both the attentionscapes **110** of FIG. 8 and Fig. 9 could use data for the fourth dimension **124** from sources other than questions, such as the first and eighth questions **160** in FIG. 5a. Industry statistics could be used, for example. The acronym labeling of the icons for the attention items **112** is: AC, Anderson Consulting; BCG, Boston Consulting Group; D & T, Deloitte and Touche; E & Y, Earnest and Young; and PWC, Price Waterhouse Cooper.

A number of things are particularly suggested by the attentionscape **110** of FIG. 9. First, no individual employer is currently "centered." In recruiting these MBAs no prospective employer has a preeminent position yet, and none has to "catch up." But the employer that can center its position, its associated attention item **112**, in this attentionscape **110** can establish a substantial advantage over its competitors. Conversely, if all of the prospective employers were already centered, for example, the message from such an attentionscape would be that efforts to change ones own position would have little if any impact. Rather, one should be making efforts to change the competitor's positions away from center. For example, in student-candidate interviews one employer might emphasize the importance of an attention item **112** for which it is objectively well centered, but its competitors are not, and also provide information that would lead the student-candidates to see how their subjective center impressions of that item are mistaken for most of the prospective employers. Remember, attention management is a "zero-

sum game." The "winner" here will have to treat the attention of these MBA students as a finite resource, and compete accordingly.

The group attentionscape **110** of FIG. 9 also suggests a longer term research project using attentionscapes. One can start with the likely true hypotheses that student attention to particular employers correlates in some measure to the eventual behavior of that student as a later employee, and then put that hypotheses to a test. Individual attentionscapes **110** for the respective MBA students can be created and their later behavior can then be monitored, particularly their business behavior. With the information from such a project, over time, we have a very powerful tool for recruiting employees who will be successful. This is a tool which the inventive attention system **100** has provided us.

Up to this point discussion of the attention system **100** has primarily been with respect to creating and using attentionscapes **110**. However, the attentionscape is merely one embodiment of the inventive essence of the attention system **100**, and the invention is more fundamental and flexible than just this one product of it. For example, quantizing (reducing to quanta, typing or categorizing) attention, then quantifying the respective types of it in the manner which the invention teaches can be useful even without using embodiments as powerful as the attentionscape **110**. Or, alternate embodiments can be used with the attentionscape **110**, with synergistic result.

FIG. 10 is a graphing **176** of the percentages of attention and time resources (y-axis) spent on various interest items **178** (x-axis) by a firm classifying itself as an innovation company. In this graphing **176** a time line **180** through square points **182** depicts time spent on the interest items **178**, and an attention line **184** through diamond points **186** depicts attention spent on the interest items **178**. As can readily be seen, the allocations of time and attention resources to the various interest items **178** do not correlate well. A balloon **170** also remarks that the firm here pays more attention to the "business logistics" interest item **178** than to the "innovation" interest item **178**, which is in clear contradiction with the firm's purported strategy. The inventive attention system 100 here tells us that the firm needs to change the way it pays out its time and attention resources for logistics and innovation, or perhaps, say if it was already quite successful and seeking only to improve rather than risk that success, it tells us that the firm should reassess its prioritizations.

The inventive attention system 100 encompasses considerable variation in the possible graphings 176, attentionscapes **110**, and other tools which it can produce. The two-dimensional graphing **176** and the 3-1/2 dimensional attentionscapes **110** used as examples herein can be extended to show additional "dimensions" of information. While the examples used are "content saturated" enough for most audiences, others might include still more information. For example, for specialized audiences like engineers or statisticians. Only round icons for attention items **112** have been used in the example attentionscapes **110**, but a straight forward extension is to use multiple icon shapes, much like the square points **182** and diamond points **186** of the graphing **176** in FIG. 10. Triangular, circular, and square icons could be used, for example, to represent opponents, neutrals, and allies; or ovals with differences in the size and orientation of the axes might represent a true fourth dimension of information, one with a full range from negative to positive. A particularly promising candidate in this vein is plotting responses to attention items **112** in a manner depicting the passage of time, e.g., the icons for the attention items **112** could change a characteristic to represent each consecutive day's response. Polar or other coordinate system representations are also candidates for use in the attention system **100**, as are non-linear scales and isometric depictions. Thus, the only limitations to embodying tools under the inventive attention system **100** are the imagination of the users to apply the invention and the ability of the target audiences to grasp what the invention can communicate to them.

Numerous examples herein have dealt with applying the attention system **100** in personal and business contexts, but its utility goes far beyond merely that. One of the early comments made in this discussion was that we should pay attention to attention. As a tool for that the attention system **100** is particularly powerful. Attention correlates, either directly or inversely, to many things which we consider important, i.e., to valid "attention items" as termed herein. For example, the inventors have observed that people's temperament is likely to correlate to the types of attention which they give to events. Thus, an introvert may give attention in systematically different ways than an extrovert. Used in this context, the attention system **100** can help work teams and other social groupings better understand each other.

Even when attention has no inherent or strong correlation to the allocation and usage of other resources, analyzing and managing that very discrepancy may prove useful. The example of time and attention allocation was used above, in FIG. 10. There time and attention were shown to be poorly correlated resource.

Alternately, the attention system **100** can be used to design environments which do not unduly monopolize attention. Information free zones are becoming popular at vacation resorts and in some business organizations. The absence, for example, of email, voicemail, faxes, phones, radio, TV etc., implies that attention cannot be given directly to these. In the zero-sum game of attention management, freeing direct attention from one source, frees it to be given to alternative sources. Hence we today the establishment of nap zones at some large organizations, where employees crawl into a tent at work to take a nap. This environment is designed specifically to avoid contact with information producing devices that ordinarily capture our attention at work. Employees report being able to better synthesize work activities and return refreshed after a nap. The inventive attention system **100** can help in such design, and, perhaps of greater initial concern, it can provide data to support even undertaking such design.

Summarizing, as has been shown herein, the attention system **100** is a powerful tool for individual and group attention analysis. It is also a very powerful tool for individual and group attention management. As was discussed with respect to FIG. 1 and FIG. 2 in the Background Art section, attention is the space between awareness and action; it is the catalyst between inputs and outcomes. Using the inventive attention system **100** these initial hypotheses can be beneficially analyzed. The attention system **100** can then, further, be used to model and change attention, at personal, company, market, and other levels.

Using the attention system **100**, the attention paid to attention items **112** can be made more effective. It is possible to change the "type" of attention given to an attention item **112**, to make it more centered, to bring it towards "zero longitude" or "zero latitude," or to tailor its attention parameters in still other manners. Such change is accomplished by adding parameter value of an opposite attention type to a dimension for an attention item **112**, to shift the attention allocated to that attention item **112**.

The attention system **100** can also provide useful attention feedback. The attention of a leader (e.g., a company or market leader) given to a particular attention item **112** can change the way that others pay attention to it. Subjective perceptions of attention therefore should be similar to external ratings, i.e. objective perceptions of the same attention. The inventors term this "360 degree feedback." As we all know, correspondence between subjective and objective perception is not always the case. Yet another example where the attention system **100** can be used here is conflict resolution, using bargaining or arbitration in helping two sides identify their differences

on important topics. Understanding the attention given to different attention items **112** can help each side understand the resulting behaviors of the other party. The attention system **100** is a very powerful tool for monitoring and correcting our subjective-objective disparities.

The attention system **100** can also be used for behavior prediction and modification (again at various levels). As discussed elsewhere herein, attention is often an early predictor of future behavior. It can be used for early indication of behavioral changes. And since different types of attention result in different behavior, changing attention types can be used to change behavior types.

In addition to the above mentioned examples, various other modifications and alterations of the inventive attention system **100** may be made without departing from the invention. Accordingly, the above disclosure is not to be considered as limiting and the appended claims are to be interpreted as encompassing the true spirit and the entire scope of the invention.

INDUSTRIAL APPLICABILITY

The present attention system **100** is well suited for application in a very broad spectrum of segments in our society. As has been discussed above in the context of examples, ranging as widely as analyzing consumer buying behaviors, market space competition, consumer behavior research, and conflict resolution and bargaining, the attention system **100** has important utility in many business contexts. Individuals and entire organizations may employ the attention system **100** to better work with prospective and existing employees and managers, customers and suppliers, competitors, and even outside organizations such as government authorities and agencies. However, despite the concentration on business contexts used herein for illustration, the utility of the attention system **100** is not limited to only business and commerce.

Individuals can use the invention in their private lives. Some potential examples include advisers, personal trainers, care givers, and even medical practitioners like psychiatrists and substance abuse counselors. Governmental, social, and even religious organizations can also use the present invention. As has been noted herein, attention is the space between awareness and action (or inaction). Attention, and the need to capture, keep, and give it are of very great importance in our individual and collective lives. The inventive attention system **100**, in its many and varied possible embodiments, provides us with a powerful capability to analyze and manage all types and topics of attention.

Economical and complete implementation of various embodiments of the present attention system **100** is practical today using widely available, well understood, and inexpensive tools and component parts. Computerized embodiments are particularly suitable. The data collection, manipulation, and presentation aspects of the invention may be implemented using computerized tools and components chosen from software based spreadsheets, databases, graphical user interfaces, and conventional software programming tools. The inventors have used Access, Excel, and Visual Basic (all TM of Microsoft Corporation of Redmond, Washington) to construct embodiments.

Still further, the attention system **100** has effectively no competition available yet except subjective personal judgment, indicating a profound need for the benefits which it can provide. Attention analysis and management, at least at levels of power approaching that of the present invention, have heretofore been unfulfilled needs. Yet these needs are ones which the discussion

herein has coincidentally illustrated as being ones which increasingly now need to be filled.

For the above, and other, reasons, it is expected that the attention system **100** of the present invention will have widespread industrial applicability. Therefore, it is expected that the commercial utility of the present invention will be extensive and long lasting.

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IN THE CLAIMS

What is claimed is:

1. A system for monitoring attention allocation, comprising:
   (a) logic that defines a plurality of attention types;
   (b) logic that collects response data about an attention item;
   (c) logic that calculates type values for each of said plurality of attention types for said attention item based on said response data; and
   (d) logic that creates a graphical representation of attention allocated to said attention item based on said type values calculated from said response data.

2. The system of claim 1, wherein said plurality of attention types are defined as associated opposed pairs.

3. The system of claim 2, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

4. The system of claim 1, wherein:
   (a) said response data is collected about a plurality of said attention items; and
   (b) said graphical representation depicts relative attention for each of said plurality of said attention items with respect to each of said attention types.

5. The system of claim 4, further comprising:
   (a) logic that calculates an importance value for each of said attention items from said response data; and
   (b) logic that depicts said importance value for each of said attention items in said graphical representation.

6. The system of claim 1, further comprising logic that presents said graphical representation on a computer monitor.

7. A method for monitoring attention allocation, comprising the steps of:

(a) defining a plurality of attention types;

(b) collecting response data about an attention item;

(c) calculating type values for each of said plurality of attention types for said attention item based on said response data;

(d) creating a graphical representation of attention allocated to said attention item based on said type values calculated from said response data.

8. The method of claim 7, wherein said plurality of attention types are defined as associated opposed pairs.

9. The method of claim 8, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

10. The method of claim 7, wherein:

(a) said response data is collected about a plurality of said attention items; and

(b) said graphical representation depicts relative attention for each of said plurality of said attention items with respect to each of said attention types.

11. The method of claim 10, further comprising the steps of:

(a) calculating an importance value for each of said attention items from said response data; and

(b) depicting said importance value for each of said attention items in said graphical representation.

12. The method of claim 7, further comprising presenting said graphical representation on a computer monitor.

13. A computer program for monitoring attention allocation, comprising:

(a) a code segment that defines a plurality of attention types;

(b) a code segment that collects response data about an attention item;

(c) a code segment that calculates type values for each of said plurality of attention types for said attention item based on said response data; and

(d) a code segment that creates a graphical representation of attention allocated to said attention item based on said type values calculated from said response data.

14. The computer program of claim 13, wherein said plurality of attention types are defined as associated opposed pairs.

15. The computer program of claim 14, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

16. The computer program of claim 13, wherein:

(a) said response data is collected about a plurality of said attention items; and

(b) said graphical representation depicts relative attention for each of said plurality of said attention items with respect to each of said attention types.

17. The computer program of claim 16, further comprising:

(a) a code segment that calculates an importance value for each of said attention items from said response data; and

(b) a code segment that depicts said importance value for each of said attention items in said graphical representation.

18. The computer program of claim 13, further comprising a code segment that presents said graphical representation on a computer monitor.

19. A system for modeling attention resources, comprising:

(a) logic that defines a plurality of attention types;

(b) logic that collects prospective data about an attention item;

(c) logic that calculates type values for each of said plurality of attention types for

said attention item based on said prospective data; and

(d) logic that generates a model of prospective attention to said attention item based upon said type values calculated from said prospective data.

20. The system of claim 19, wherein said plurality of attention types are defined as associated opposed pairs.

21. The system of claim 20, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

22. The system of claim 19, wherein:

(a) said prospective data is collected about a plurality of said attention items; and

(b) said model depicts said prospective attention for each of said plurality of said attention items.

23. The system of claim 19, further comprising logic that permits altering said prospective data with respect to individual said attention types, to facilitate simulating changes in the attention resources.

24. The system of claim 19, further comprising logic that presents said model on a computer monitor.

25. A method for modeling attention resources, comprising the steps of:

(a) defining a plurality of attention types;

(b) collecting prospective data about an attention item;

(c) calculating type values for each of said plurality of attention types for said attention item based on said prospective data; and

(d) generating a model of prospective attention to said attention item based upon said type values calculated from said prospective data.

26. The method of claim 25, wherein said plurality of attention types are defined as associated opposed pairs.

27. The method of claim 26, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

28. The method of claim 25, wherein:

(a) said prospective data is collected about a plurality of said attention items; and

(b) said model depicts said prospective attention for each of said plurality of said attention items.

29. The method of claim 25, further comprising altering said prospective data with respect to individual said attention types, to facilitate simulating changes in the attention resources.

30. The method of claim 25, further comprising presenting said model on a computer monitor.

31. A computer program for modeling attention resources, comprising:

(a) a code segment that defines a plurality of attention types;

(b) a code segment that collects prospective data about an attention item;

(c) a code segment that calculates type values for each of said plurality of attention types for said attention item based on said prospective data; and

(d) a code segment that generates a model of prospective attention to said attention item based upon said type values calculated from said prospective data.

32. The computer program of claim 31, wherein said plurality of attention types are defined as associated opposed pairs.

33. The computer program of claim 32, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

34. The computer program of claim 31, wherein:

(a) said prospective data is collected about a plurality of said attention items; and

(b) said model depicts said prospective attention for each of said plurality of said

attention items.

35. The computer program of claim 34, further comprising a code segment that permits altering said prospective data with respect to individual said attention types, to facilitate simulating changes in the attention resources.

36. The computer program of claim 31, further comprising a code segment that presents said model on a computer monitor.

37. A system for allocating attention resources through feedback of actual and perceived attention quantums, comprising:

(a) logic that defines a plurality of attention types;

(b) logic that collects response data about a plurality of attention items;

(c) logic that calculates perceived type values for attention quantums perceived as allocated to each of said plurality of attention types;

(d) logic that calculates actual type values for attention quantums actually allocated to each of said plurality of attention types;

(e) logic that creates a representation of attention perceived as allocated to said attention items verses attention actually allocated to said attention items based on said actual type values and said perceived type values calculated from said response data; and

(f) logic that includes in said representation feedback for adjusting allocation of the attention resources.

38. The system of claim 37, wherein said plurality of attention types are defined as associated opposed pairs.

39. The system of claim 38, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

40. The system of claim 37, further comprising logic that questions at least one individual about their actual and perceived use of the attention resources, as part of collecting said response data.

41. The system of claim 40, further comprising:

(a) logic that calculates an importance value for each of said attention items from said response data; and

(b) said representation further depicts said importance value for each of said attention items.

42. The system of claim 37, further comprising logic that presents said representation on a computer monitor.

43. A method for allocating attention resources through feedback of actual and perceived attention quantums, comprising the steps of:

(a) defining a plurality of attention types;

(b) collecting response data about a plurality of attention items;

(c) calculating perceived type values for attention quantums perceived as allocated to each of said plurality of attention types;

(d) calculating actual type values for attention quantums actually allocated to each of said plurality of attention types;

(e) creating a representation of attention perceived as allocated to said attention items verses attention actually allocated to said attention items based on said actual type values and said perceived type values calculated from said response data; and

(f) including in said representation feedback for adjusting allocation of the attention resources.

44. The method of claim 43, wherein said plurality of attention types are defined as associated opposed pairs.

45. The method of claim 44, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

46. The method of claim 43, wherein said response data is collected by questioning at least one individual about their actual and perceived use of the attention resources.

47. The method of claim 46, further comprising:

(a) calculating an importance value for each of said attention items from said response data; and

(b) depicting said importance value for each of said attention items in said graphical representation.

48. The method of claim 43, further comprising presenting said representation on a computer monitor.

49. A computer program for allocating attention resources through feedback of actual and perceived attention quantums, comprising:

(a) a code segment that defines a plurality of attention types;

(b) a code segment that collects response data about a plurality of attention items;

(c) a code segment that calculates perceived type values for attention quantums perceived as allocated to each of said plurality of attention types;

(d) a code segment that calculates actual type values for attention quantums actually allocated to each of said plurality of attention types;

(e) a code segment that creates a representation of attention perceived as allocated to said attention items verses attention actually allocated to said attention items based on said actual type values and said perceived type values calculated from said response data; and

(f) a code segment that includes in said representation feedback for adjusting allocation of the attention resources.

50. The computer program of claim 49, wherein said plurality of attention types are defined as associated opposed pairs.

51. The computer program of claim 50, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

52. The computer program of claim 49, further comprising a code segment that questions at least one individual about their actual and perceived use of the attention resources, as part of

collecting said response data.

53. The computer program of claim 52, further comprising:

(a) a code segment that calculates an importance value for each of said attention items from said response data; and

(b) said representation further depicts said importance value for each of said attention items.

54. The computer program of claim 49, further comprising a code segment that presents said representation on a computer monitor.

55. A system for maximizing attention effectiveness, comprising:

(a) logic that defines at least one opposed pair of attention parameters for an attention item;

(b) logic that collects response data about attention paid to said attention item;

(c) logic that calculates a positive value and a negative value for each said opposed pair of attention parameters based on said response data;

(d) logic that combines said positive value and said negative value to obtain a deviation value representative of potential for increasing the attention effectiveness of said attention paid to said attention item.

56. The system of claim 55, wherein said opposed pairs of attention parameters include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

57. The system of claim 55, wherein:

(a) said response data is collected about a plurality of said attention items; and

(b) a plurality of said deviation values are obtained each respective to one of said plurality of said attention items;

and further comprising:

(c) logic that presents a comparative representation of said plurality of said deviation values to permit selectively maximizing the attention effectiveness paid to at least one of said attention items.

58. The system of claim 57, wherein:

(a) each said opposed pair of attention parameters defines opposite directions in a dimension; and

(b) said comparative representation presents all said dimensions as orthogonal.

59. The system of claim 57, further comprising:

(a) providing an importance value for each of said plurality of said attention items; and

(b) depicting said importance value for each of said attention items in said comparative representation.

60. The system of claim 58, further comprising presenting said comparative representation on a computer monitor.

61. A method for maximizing attention effectiveness, comprising the steps of:

(a) defining at least one opposed pair of attention parameters for an attention item;

(b) collecting response data about attention paid to said attention item;

(b) calculating a positive value and a negative value for each said opposed pair of attention parameters based on said response data; and

(c) combining said positive value and said negative value to obtain a deviation value representative of potential for increasing the attention effectiveness of said attention paid to said attention item.

62. The method of claim 61, wherein said opposed pairs of attention parameters include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

63. The method of claim 61, wherein:

(a) said response data is collected about a plurality of said attention items; and

(b) a plurality of said deviation values are obtained each respective to one of said plurality of said attention items;

and the method further comprises the step of:

(c) presenting a comparative representation of said plurality of said deviation values to permit selectively maximizing the attention effectiveness paid to at least one of

said attention items.

64. The method of claim 63, wherein:

(a) each said opposed pair of attention parameters defines opposite directions in a dimension; and

(b) said comparative representation presents all said dimensions as orthogonal.

65. The method of claim 63, further comprising:

(a) providing an importance value for each of said plurality of said attention items; and

(b) depicting said importance value for each of said attention items in said comparative representation.

66. The method of claim 64, further comprising presenting said comparative representation on a computer monitor.

67. A computer program for maximizing attention effectiveness, comprising:

(a) a code segment that defines at least one opposed pair of attention parameters for an attention item;

(b) a code segment that collects response data about attention paid to said attention item;

(b) a code segment that calculates a positive value and a negative value for each said opposed pair of attention parameters based on said response data;

(c) a code segment that combines said positive value and said negative value to obtain a deviation value representative of potential for increasing the attention effectiveness of said attention paid to said attention item.

68. The computer program of claim 67, wherein said opposed pairs of attention parameters include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

69. The computer program of claim 67, wherein:

(a) said response data is collected about a plurality of said attention items; and

(b) a plurality of said deviation values are obtained each respective to one of said plurality of said attention items;

and further comprising:

(c) a code segment that presents a comparative representation of said plurality of said deviation values to permit selectively maximizing the attention effectiveness paid to at least one of said attention items.

70. The computer program of claim 69, wherein:

(a) each said opposed pair of attention parameters defines opposite directions in a dimension; and

(b) said comparative representation presents all said dimensions as orthogonal.

71. The computer program of claim 69, further comprising:

(a) a code segment that provides an importance value for each of said plurality of said attention items; and

(b) a code segment that depicts said importance value for each of said attention items in said comparative representation.

72. The computer program of claim 70, further comprising a code segment that presents said comparative representation on a computer monitor.

73. A system for categorizing and analyzing data to increase efficiency, comprising:

(a) logic that defines a plurality of attention types;

(b) logic that collects attention response data about attention paid to a plurality of attention items;

(c) logic that collects time response data about time spent on each of said plurality of attention items;

(d) logic that calculates attention values and time values for each of said plurality of attention types based on said attention response data and said time response data; and

(e) logic that presents a representation of said attention paid verses said time spent on said plurality of attention items.

74. The system of claim 73, wherein said plurality of attention types are defined as associated

opposed pairs.

75. The system of claim 74, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

76. The system of claim 73, wherein said response data is collected from a single individual.

77. The system of claim 73, wherein said response data is collected from a group of individuals and the system further comprises logic that aggregates said response data.

78. The system of claim 73, further comprising logic that presents said representation on a computer monitor.

79. A method for categorizing and analyzing data to increase efficiency, comprising the steps of:

(a) defining a plurality of attention types;

(b) collecting attention response data about attention paid to a plurality of attention items

(c) collecting time response data about time spent on each of said plurality of attention items;

(d) calculating attention values and time values for each of said plurality of attention types based on said attention response data and said time response data; and

(e) presenting a representation of said attention paid verses said time spent on said plurality of attention items.

80. The method of claim 79, wherein said plurality of attention types are defined as associated opposed pairs.

81. The method of claim 80, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

82. The method of claim 79, wherein said response data is collected from a single individual.

83. The method of claim 79, wherein said response data is collected from a group of individuals and the method further comprises the step of aggregating said response data.

84. The method of claim 79, further comprising presenting said representation on a computer monitor.

85. A computer program for categorizing and analyzing data to increase efficiency, comprising:

(a) a code segment that defines a plurality of attention types;

(b) a code segment that collects attention response data about attention paid to a plurality of attention items;

(c) a code segment that collects time response data about time spent on each of said plurality of attention items;

(d) a code segment that calculates attention values and time values for each of said plurality of attention types based on said attention response data and said time response data; and

(e) a code segment that presents a representation of said attention paid verses said time spent on said plurality of attention items.

86. The computer program of claim 85, wherein said plurality of attention types are defined as associated opposed pairs.

87. The computer program of claim 86, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

88. The computer program of claim 85, wherein said response data is collected from a single individual.

89. The computer program of claim 85, wherein said response data is collected from a group of individuals and the computer program further comprises a code segment that aggregates said response data.

90. The computer program of claim 85, further comprising a code segment that presents said representation on a computer monitor.

91. A system for directing group and personal attention, comprising:

(a) logic that defines a plurality of attention types;

(b) logic that specifies desired values for each of said plurality of attention types for an attention item;

(c) logic that collects response data for attention paid to said attention item;

(d) logic that calculates actual values for each of said plurality of attention types for said attention item based on said response data;

(e) logic that compares said desired values with said actual values and determining difference values between each said desired value and said actual value for each of said plurality of attention types for said attention item;

(f) logic suitable for presenting said difference values to a user, to facilitate adjustably reducing said magnitude differences.

92. The system of claim 1, wherein said plurality of attention types are defined as associated opposed pairs.

93. The system of claim 92, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

94. The system of claim 91, wherein said response data is collected from a single individual.

95. The system of claim 91, wherein said response data is collected from a group of individuals and the system further comprises logic that aggregates said response data.

96. The system of claim 91, further comprising logic that presents said difference values in a comparative representation on a computer monitor.

97. A method for directing attention, comprising the steps of:

(a) defining a plurality of attention types;

(b) specifying desired values for each of said plurality of attention types for an attention item;

(c) collecting response data for attention paid to said attention item;

(d) calculating actual values for each of said plurality of attention types for said attention item based on said response data;

(e) comparing said desired values with said actual values and determining difference values between each said desired value and said actual value for each of said plurality of attention types for said attention item;

(f) presenting said difference values to a user, to facilitate adjustably reducing said magnitude differences.

98. The method of claim 97, wherein said plurality of attention types are defined as associated opposed pairs.

99. The method of claim 98, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

100. The method of claim 97, wherein said response data is collected from a single individual.

101. The method of claim 97, wherein said response data is collected from a group of individuals and the method further comprises the step of aggregating said response data.

102. The method of claim 97, further comprising presenting said difference values in a comparative representation on a computer monitor.

103. A computer program for directing group and personal attention, comprising:

(a) a code segment that defines a plurality of attention types;

(b) a code segment that specifies desired values for each of said plurality of attention types for an attention item;

(c) a code segment that collects response data for attention paid to said attention item;

(d) a code segment that calculates actual values for each of said plurality of attention types for said attention item based on said response data;

(e) a code segment that compares said desired values with said actual values and determining difference values between each said desired value and said actual value for each of said plurality of attention types for said attention item;

(f) a code segment suitable for presenting said difference values to a user, to facilitate adjustably reducing said magnitude differences.

104. The computer program of claim 103, wherein said plurality of attention types are defined as associated opposed pairs.

105. The computer program of claim 104, wherein said associated opposed pairs of attention types include at least one pair-member of the set consisting of captive attention and voluntary attention, front-of-mind attention and back-of-mind attention, and aversive attention and attractive attention.

106. The computer program of claim 103, wherein said response data is collected from a single individual.

107. The computer program of claim 103, wherein said response data is collected from a group of individuals and the computer program further comprises a code segment that aggregates said response data.

108. The computer program of claim 103, further comprising a code segment that presents said difference values in a comparative representation on a computer monitor.

109. A system for generating awareness of attention allocation, comprising:

(a) logic that defines a plurality of dimensions and a plurality of scales, wherein each said scale maps to one said dimension;

(b) logic that collects a plurality of data values each representative of attention to an attention item;

(c) logic that assigns each said data value to a particular said dimension and its respective said scale;

(d) logic that defines a plane using a first said dimension and a second said dimension;

(e) logic that maps each said attention item to a location within said plane based upon the respective said positions for said attention item with respect to said first dimension and said second dimension; and

(f) logic that displays said plane; and

(g) logic that displays said attention item in said plane based on its said location.

110. The system of claim 109, further comprising logic that defines a space from said plane using a third said dimension; and wherein said attention item is mapped to said location within said space based upon the respective said position for said attention item with respect to said third dimension; said third dimension is displayed orthogonal to said plane; and each said attention item is displayed in said space.

111. The system of claim 110, wherein said position for said attention item with respect to said third dimension is depicted in said space by a variation in color.

112. The system of claim 109, further comprising logic that assigns an icon to each said attention item; logic that defines one said dimension to be an icon dimension; and logic that adapts the appearance of each said icon based on the respective said position for its said attention item with respect to said icon dimension; and wherein each said attention item is displayed in said plane as its respective said icon.

113. The system of claim 109, wherein for each of a plurality of said attention items a respective said plurality of data values is collected; and each of said plurality of said attention items is displayed in said plane based on its respective said location.

114. The system of claim 109, further comprising logic that displays said plane and said attention item in said plane on a computer monitor.

115. A method for generating awareness of attention allocation, comprising the steps of:

(a) defining a plurality of dimensions and a plurality of scales, wherein each said scale maps to one said dimension;

(b) collecting a plurality of data values each representative of attention to an attention item;

(c) assigning each said data value to a particular said dimension and its respective said scale;

(d) defining a plane using a first said dimension and a second said dimension;

(e) mapping each said attention item to a location within said plane based upon the respective said positions for said attention item with respect to said first dimension and said second dimension; and

(f) displaying said plane; and

(g) displaying said attention item in said plane based on its said location.

116. The method of claim 115, further comprising the step of defining a space from said plane using a third said dimension; and wherein said step (e) further includes mapping said attention item to said location within said space based upon the respective said position for said attention item with respect to said third dimension said step (f) further includes displaying said third dimension orthogonal to said plane; and said step (g) further includes displaying each said attention item in said space.

117. The method of claim 116, wherein said position for said attention item with respect to said third dimension is depicted in said space by a variation in color.

118. The method of claim 105, further comprising the steps of assigning an icon to each said attention item; defining one said dimension to be an icon dimension; and adapting the appearance of each said icon based on the respective said position for its said attention item with respect to said icon dimension; and wherein said step (g) further includes displaying each said attention item in said plane as its respective said icon.

119. The method of claim 115, wherein said step (b) further includes collecting said plurality of data values for each of a plurality of said attention items; and said step (g) further includes displaying each of said plurality of said attention items in said plane based on its respective said location.

120. The method of claim 115, further comprises displaying said plane and said attention item in said plane on a computer monitor.

121. A computer program for modeling attention resources, comprising:

(a) a code segment that defines a plurality of dimensions and a plurality of scales, wherein each said scale maps to one said dimension;

(b) a code segment that collects a plurality of data values each representative of attention to an attention item;

(c) a code segment that assigns each said data value to a particular said dimension and its respective said scale;

(d) a code segment that defines a plane using a first said dimension and a second said dimension;

(e) a code segment that maps each said attention item to a location within said plane based upon the respective said positions for said attention item with respect to said first dimension and said second dimension; and

(f) a code segment that displays said plane; and

(g) a code segment that displays said attention item in said plane based on its said location.

122. The computer program of claim 121, further comprising a code segment that defines a space from said plane using a third said dimension; and wherein said attention item is mapped to said location within said space based upon the respective said position for said attention item with respect to said third dimension; said third dimension is displayed orthogonal to said plane; and each said attention item is displayed in said space.

123. The computer program of claim 122, wherein said position for said attention item with respect to said third dimension is depicted in said space by a variation in color.

124. The computer program of claim 121, further comprising a code segment that assigns an icon to each said attention item; a code segment that defines one said dimension to be an icon dimension; and a code segment that adapts the appearance of each said icon based on the respective said position for its said attention item with respect to said icon dimension; and wherein each said attention item is displayed in said plane as its respective said icon.

125. The computer program of claim 121, wherein for each of a plurality of said attention items a respective said plurality of data values is collected; and each of said plurality of said attention items is displayed in said plane based on its respective said location.

126. The computer program of claim 121, further comprising a code segment that displays said plane and said attention item in said plane on a computer monitor.

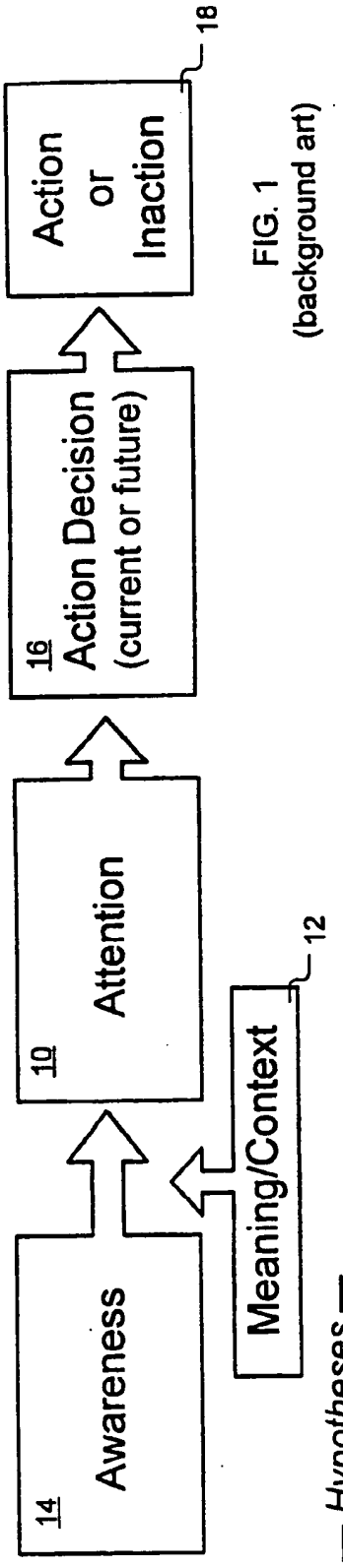


FIG. 1
(background art)

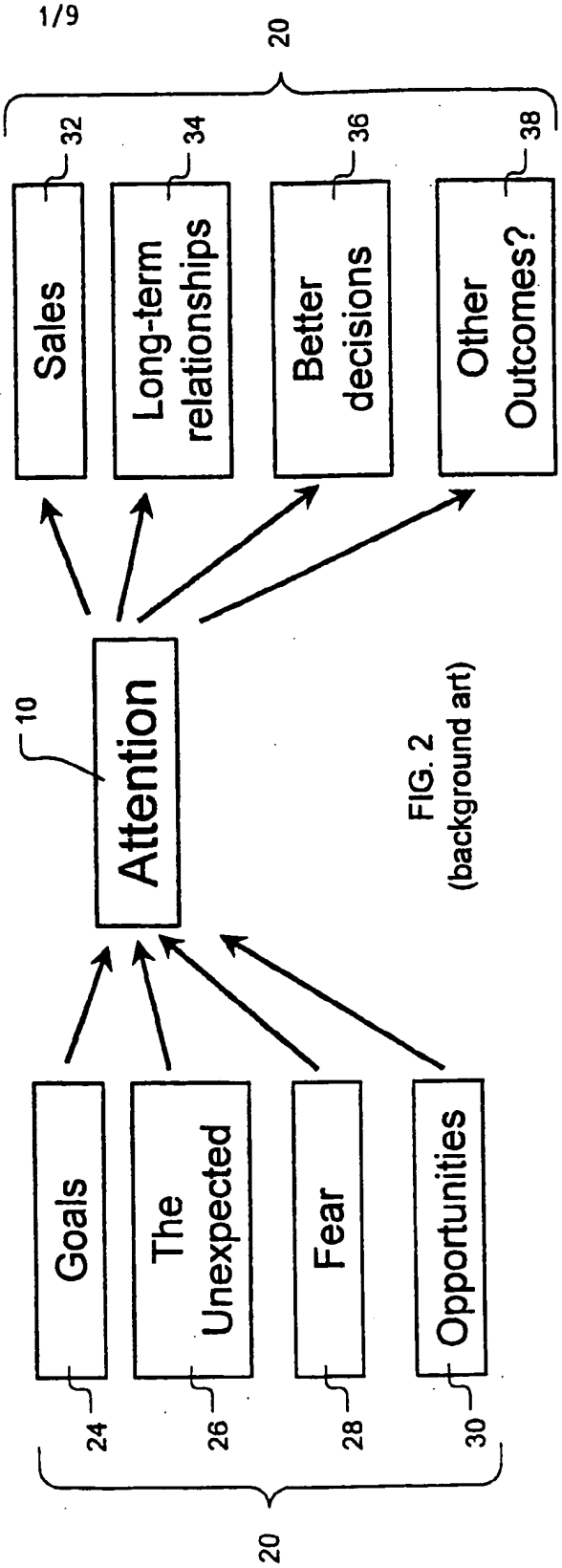
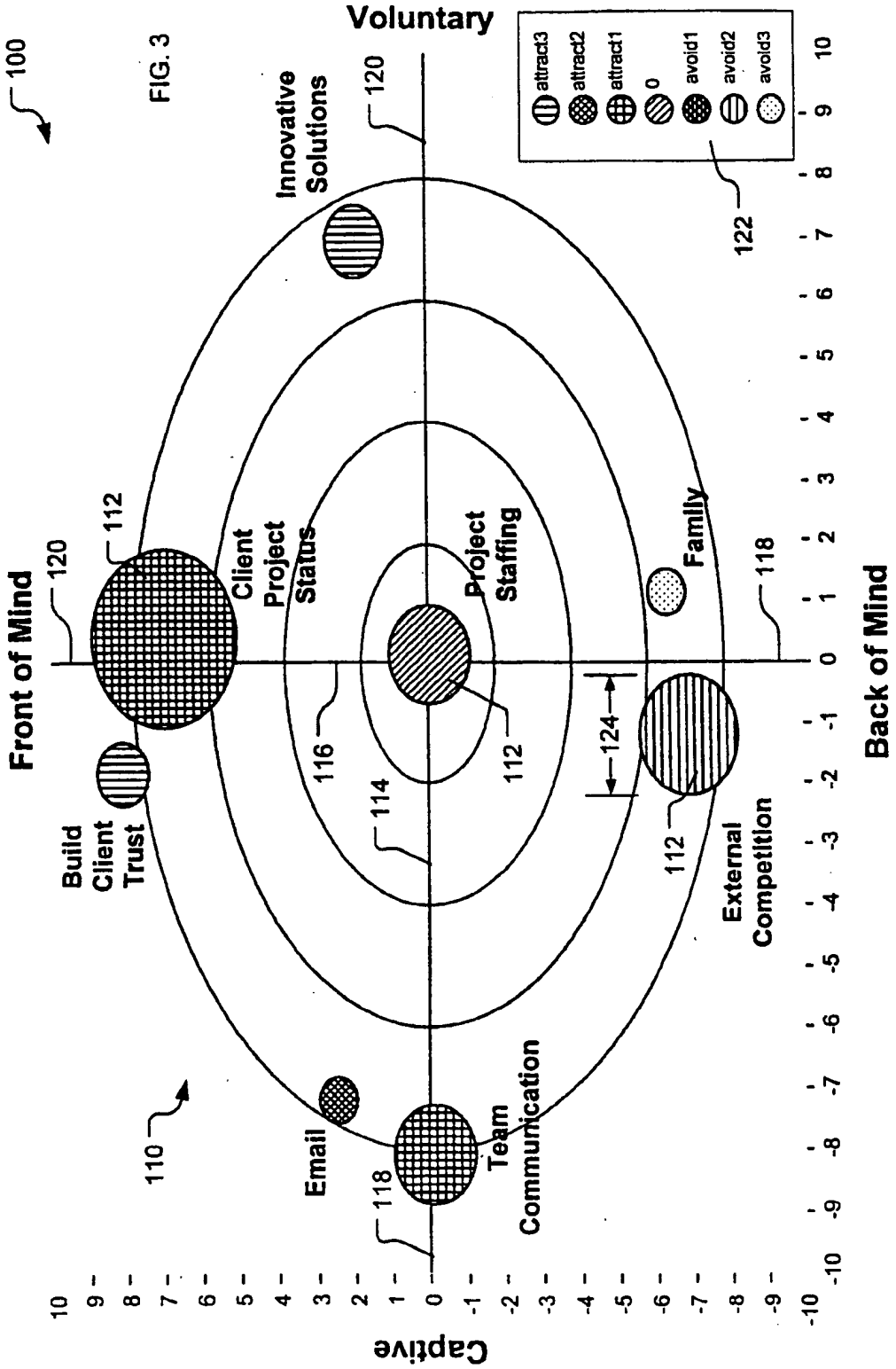


FIG. 2
(background art)


100
FIG. 3
Voluntary
Captive
Front of Mind
Back of Mind
Innovative Solutions
Client Project Status
Project Staffing
Family
Build Client Trust
Email
Team Communication
External Competition
110
112
114
116
118
120
122
124
attract3
attract2
attract1
0
avoid1
avoid2
avoid3

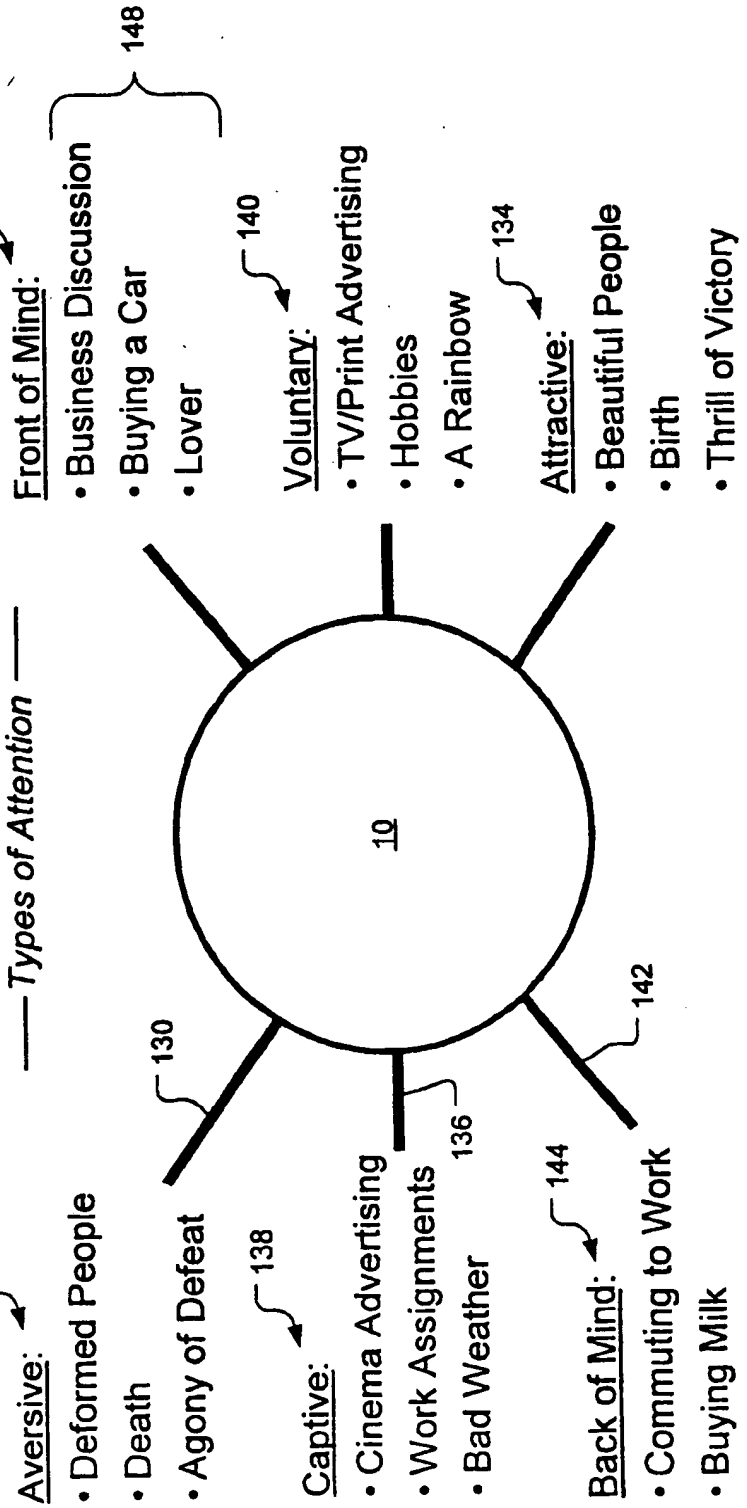

Types of Attention
10
Front of Mind:
• Business Discussion
• Buying a Car
• Lover
146
148
Voluntary:
• TV/Print Advertising
• Hobbies
• A Rainbow
140
134
Attractive:
• Beautiful People
• Birth
• Thrill of Victory
Back of Mind:
• Commuting to Work
• Buying Milk
• Spouse
144
142
Captive:
• Cinema Advertising
• Work Assignments
• Bad Weather
138
136
Aversive:
• Deformed People
• Death
• Agony of Defeat
132
130

FIG. 4

FIG. 5a

160 162 164

#	Question	Response	Factor
1	Please enter the percentage of attention paid to each attention item.	A percentage value between 0 and 100. Total across all attention items must sum to 100%	Amount of Attention
2	I really concentrated on this, spending some real quality time on it.	Agreement Scale -3 to +3	Front of Mind Attention
3	I'm excited by it; it is something that makes me happy.	Agreement Scale -3 to +3	Attractive Attention
4	I did not feel like I could avoid this; it was necessary (or imperative)	Agreement Scale -3 to +3	Captive Attention
5	I might have suffered negative consequences if I didn't pay attention to this; it was not necessarily positive.	Agreement Scale -3 to +3	Aversive Attention
6	This was on my mind, but at a subconscious level; didn't really have to concentrate on it.	Agreement Scale -3 to +3	Back of Mind Attention
7	I chose to focus on this; it was voluntary.	Agreement Scale -3 to +3	Voluntary Attention
8	How much time was spent on this item?	Time in hour and minutes (HH:MM)	Time Allocation

+3	Strongly Agree
+2	Agree
+1	Somewhat Agree
0	Neutral
-1	Somewhat Disagree
-2	Disagree
-3	Strongly Disagree

FIG. 5b

Value greater than or equal to 5	Red
Value greater than or equal to 3	Orange
Value greater than or equal to 1	Yellow
Value greater than –1	Green
Value greater than –3	Light Blue
Value greater than –5	Dark Blue
Value less than or equal to -5	Purple

FIG. 5c

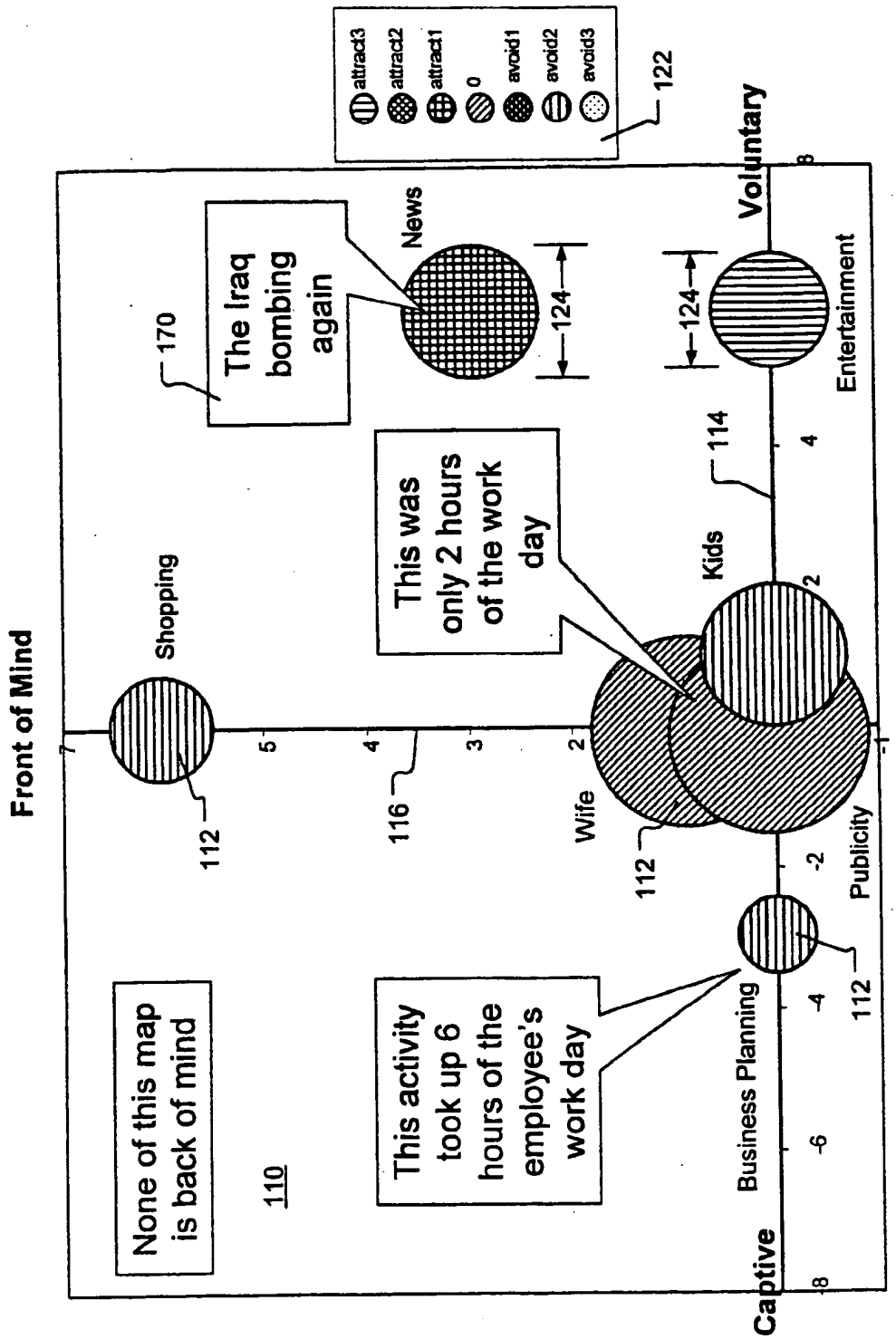

attract3
attract2
attract1
0
avoid1
avoid2
avoid3
122
Front of Mind
Back of Mind
Voluntary
Captive
Shopping
News
Entertainment
Kids
Wife
Business Planning
Publicity
The Iraq bombing again
170
This was only 2 hours of the work day
This activity took up 6 hours of the employee's work day
None of this map is back of mind
110
112
114
116
124
7
5
4
3
2
-2
-4
-6
-8
8
4
2
-1

FIG. 6

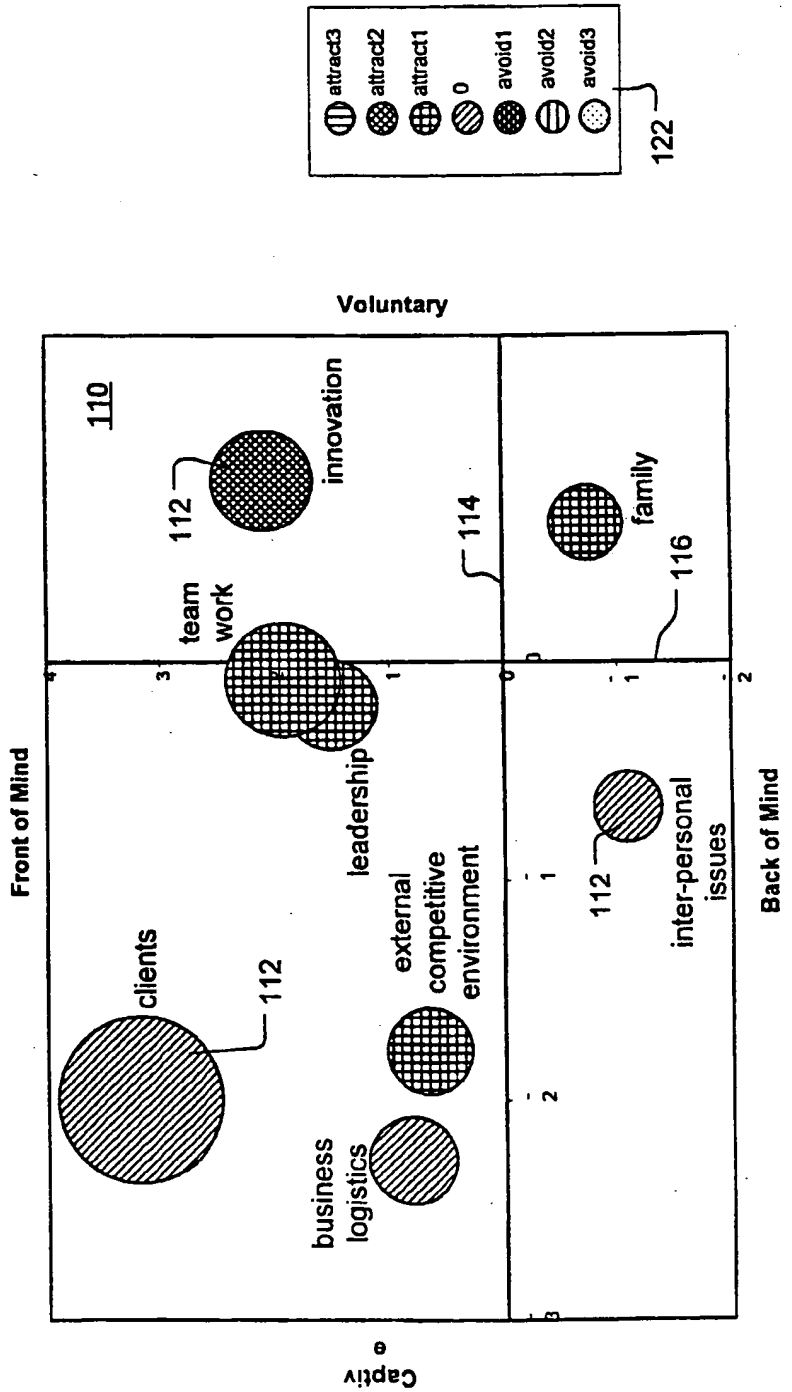

attract3
attract2
attract1
0
avoid1
avoid2
avoid3
122
Voluntary
110
innovation
112
team work
114
family
116
leadership
external competitive environment
clients
112
business logistics
112
inter-personal issues
Front of Mind
Back of Mind
Captiv
e

FIG. 7

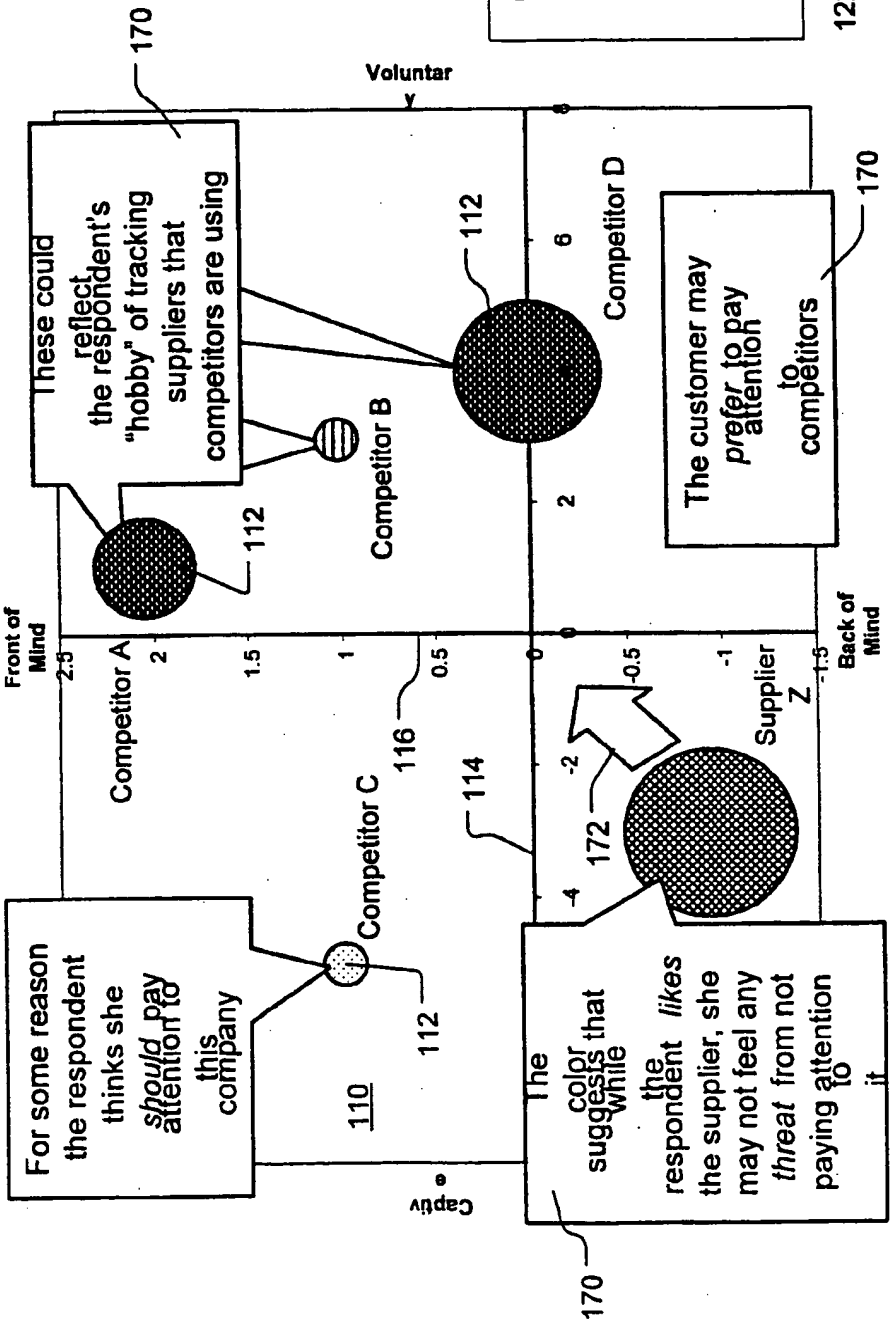

attract3
attract2
attract1
0
avoid1
avoid2
avoid3
122
170
Voluntar
y
These could reflect the respondent's "hobby" of tracking suppliers that competitors are using
112
Competitor A
Competitor B
112
Competitor D
112
The customer may prefer to pay attention to competitors
170
Front of Mind
Back of Mind
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
2
6
116
114
-2
-4
172
Supplier Z
Competitor C
112
For some reason the respondent thinks she should pay attention to this company
110
Capabi
e
The color suggests that while the respondent likes the supplier, she may not feel any threat from not paying attention to it
170

FIG. 8

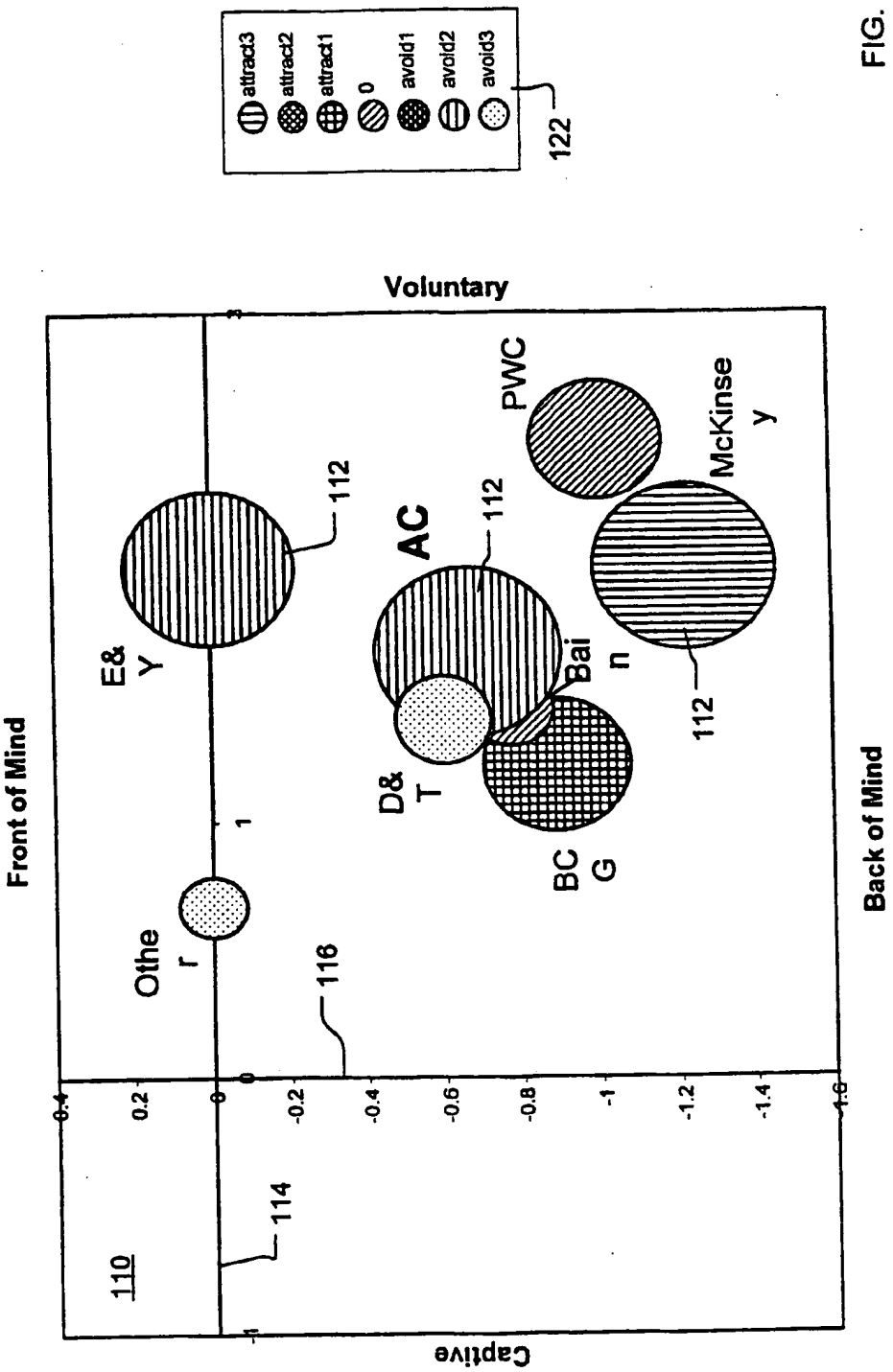

attract3
attract2
attract1
0
avoid1
avoid2
avoid3
122
Voluntary
Front of Mind
Back of Mind
Captive
110
114
116
112
E&
Y
Othe
r
AC
D&
T
Bai
n
BC
G
PWC
McKinse
y
1
0
-1
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
-1.6

FIG. 9

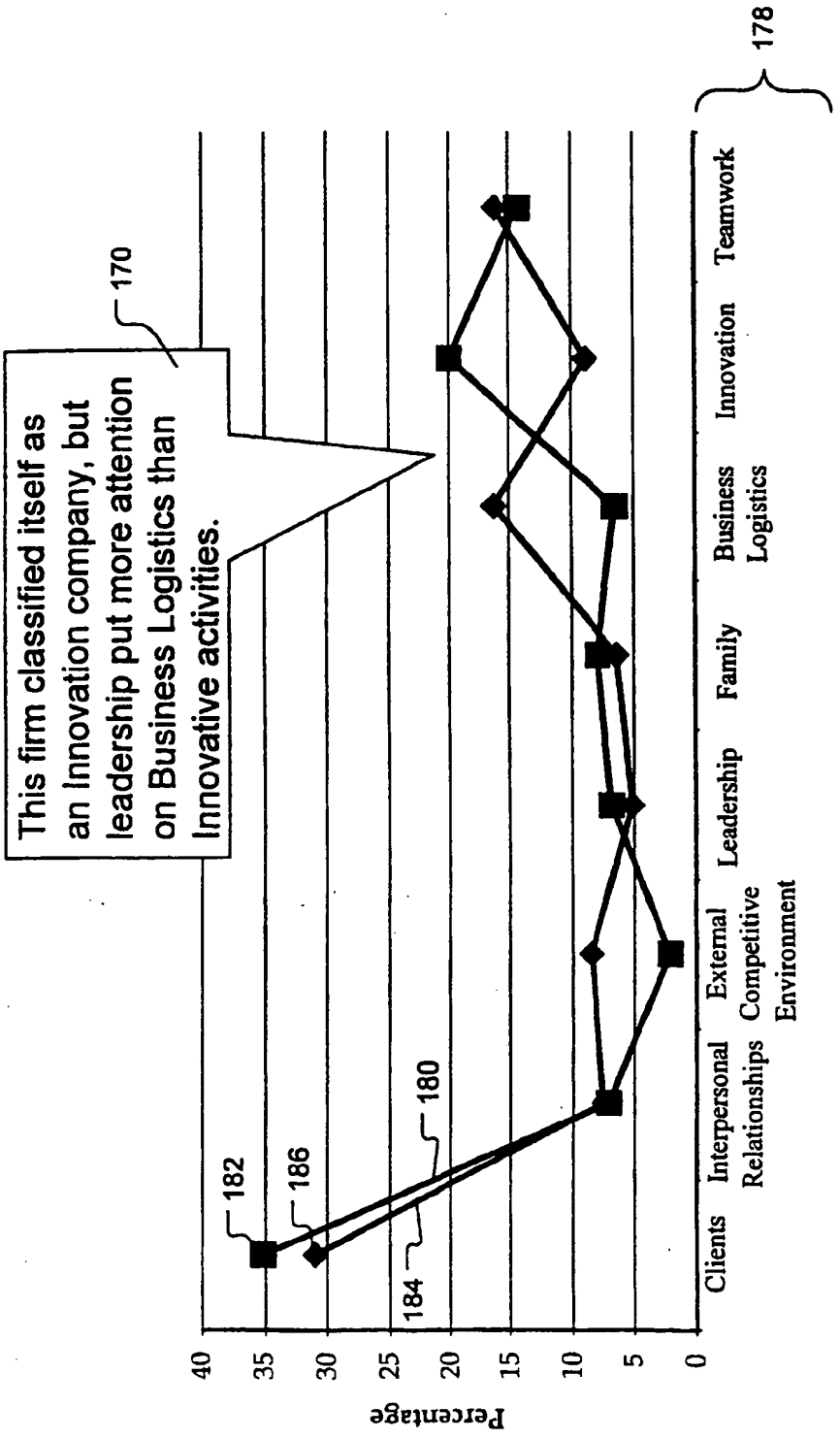

This firm classified itself as an Innovation company, but leadership put more attention on Business Logistics than Innovative activities.
170
178
182
186
180
184
Percentage
40
35
30
25
20
15
10
5
0
Clients
Interpersonal Relationships
External Competitive Environment
Leadership
Family
Business Logistics
Innovation
Teamwork

FIG. 10